

# ***Stereo Cassette Deck***

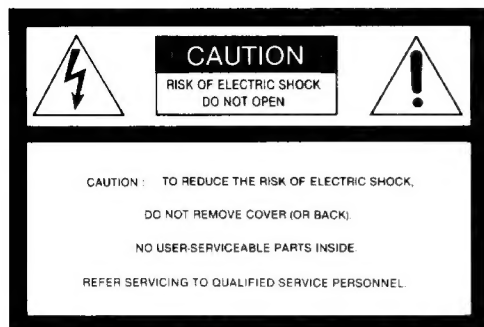
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Operating Instructions

*TC-WR620*

## WARNING

**To prevent fire or shock hazard, do not expose the unit to rain or moisture.**



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

\* The graphical symbols are on the rear enclosure.

### Owner's Record

The model and serial numbers are located at the rear. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. TC-WR620      Serial No. \_\_\_\_\_

### INFORMATION FOR USERS IN U.S.A.

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna

Relocate the equipment with respect to the receiver

Move the equipment away from the receiver

Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

### IMPORTANT NOTICE FOR USERS IN U.K.

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral

Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

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# Features

- **The Dolby HX PRO\* system** which improves the linearity of a tape's high-range response during recording.
- **Automatic tape type detection** during playback and recording.
- **A relay function** for long playback.
- **Auto-synchro dubbing** at normal or high (double) speed.
- **AMS function** which provides easy access to desired selections.
- **An easy-to-read digital linear counter** which shows the elapsed recording or playback time for decks A and B.

\*Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen. "DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

# Precautions

## On safety

- Before operating your unit, be sure its operating voltage matches that of your local power supply.
- Should anything fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it will not be used for a long time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.

## On operation

- When the unit is not used, turn the power off to conserve energy and to extend the useful life of your unit.
- Because of a safety mechanism, the function buttons will not operate if the cassette holder is not completely closed, if there is no cassette in the cassette holder, or if a cassette has been incorrectly inserted into the cassette holder.

## On head cleaning

The head and tape path should be cleaned after every 10 hours of operation. Dirty heads and a dirty tape path may cause:

- loss of high-frequency response
- loss of sound volume
- sound drop-out

## Note on cassettes longer than 90 minutes

The use of cassettes longer than 90 minutes is not recommended except for long continuous playback.

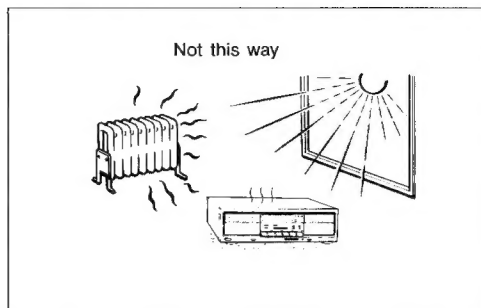
If you have any questions or problems concerning your unit, please contact your nearest Sony dealer.

For detailed safety precautions, see the leaflet "IMPORTANT SAFEGUARDS."

# Installation

## Notes on installation

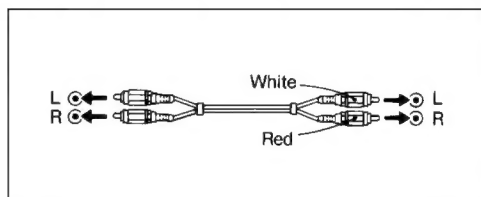
- Place the unit with the front panel facing you in a location with adequate air circulation to prevent overheating of the unit.
- Do not place the unit:
  - near heat sources such as radiators or air ducts.
  - in places subject to direct sunlight, excessive dust, mechanical vibration or shock.
  - in an inclined position.
  - on a rug or other soft surface that would block the ventilation holes on the bottom of the unit.
- Do not throw away the carton and packing material. They will come in handy when transporting the unit or shipping it for servicing.



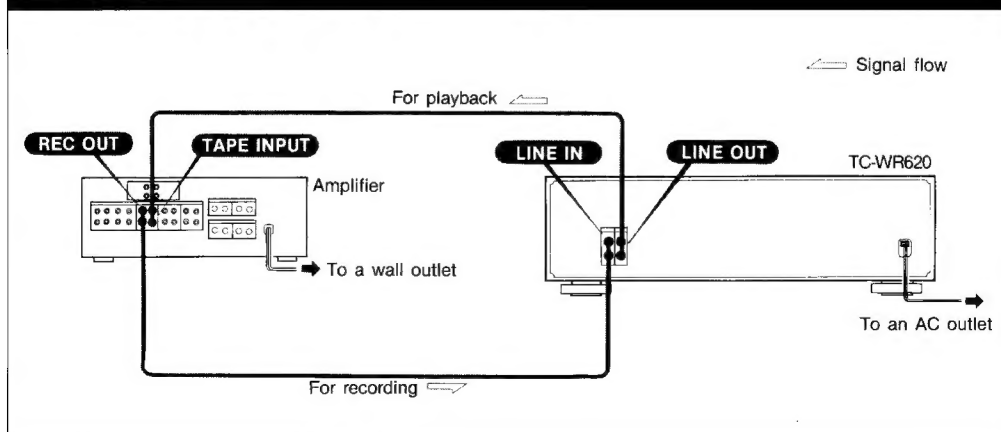
## Connections

### Notes on Connections

- Turn off the power to all equipment to be connected before making any connection.
- Note that the red plug of the supplied connecting cord is for right-channel (R) connection and the white plug for left-channel (L) connection.
- The connecting cords should be fully inserted into the jacks. A loose connection may cause hum pickup.

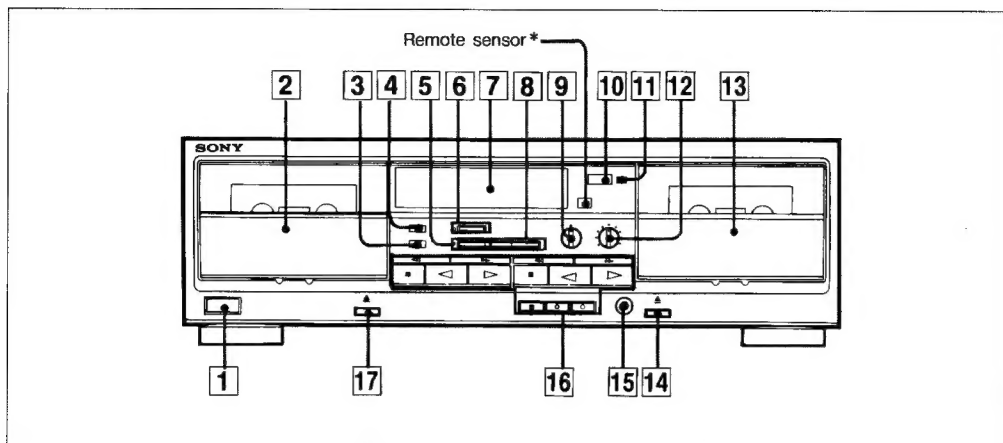


### Basic Connection



# Identification of Front Panel Parts

Refer to the page number indicated in ● for details.



1 POWER switch

2 Cassette holder (deck A)

3 NR (Dolby noise reduction) switch ● 10

4 DIR (direction) MODE switch ● 7 10 13

5 AUTO PAUSE button and indicator 11

6 BLANK SKIP button and indicator ●

7 Display panel

8 SYNCHRO DUBBING buttons 13  
HIGH SPEED button  
NORM (normal) SPEED button

9 BALANCE control 10

10 Tape COUNTER

11 Counter RESET button

12 REC (recording) LEVEL control 10 11

13 Cassette holder (deck B)

14 Eject button (deck B)

15 PHONES (headphones) jack (stereo phone jack)

16 Tape operation buttons  
■ (stop) button  
◀ (leftward fast winding) button  
▶ (forward play) button  
◀ (reverse play) button  
▶ (rightward fast winding) button  
|| PAUSE button  
○ REC MUTE (recording muting) button 12  
● REC (recording) button

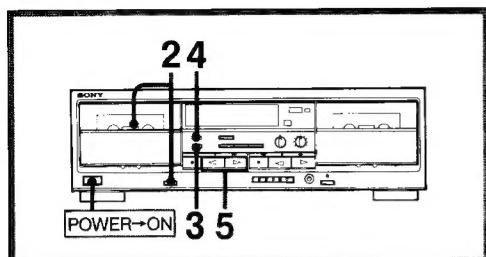
17 Eject button (deck A)

\* You can remotely control this cassette deck with:

- A remote commander that came with a Sony amplifier or receiver if it has the mark and cassette deck control capability.
- Any optional Sony remote commander with the mark.

# Playing Back

Follow the procedure below to play back a cassette on deck A or B.



**1** Turn on the amplifier and select the tape function.

**2** Insert a cassette.



**3** Set the (Dolby) NR switch to the same position that was used when the cassette was recorded.



**4** Select the direction mode.

To play to the end of one side only



To play back both sides continuously\*



\* After playing back five times, the deck automatically stops.

**5** Start playback.

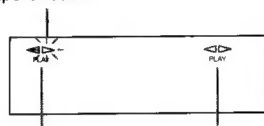
From the front side



From the reverse side



Tape direction



Deck A

Deck B

To stop playback, press .

To stop playback momentarily, press .

To restart play, press , , or .

To fastwind a tape rightward, press .

To fastwind a tape leftward, press .

## What is the Dolby NR system?

The Dolby NR (noise reduction) system reduces tape hiss noise in low-level, high-frequency signals by boosting the signals during recording and lowering them during playback.

## Is it necessary to set the tape type being used?

No. The deck has an automatic tape type detection system. Of the four major types of tapes, your unit can use TYPE I (normal), TYPE II (CrO<sub>2</sub>) and IV (metal). The tape detection system automatically adjusts the equalization and bias current to the optimum level for the type of cassette detected.

## When decks A and B are in playback mode

Only playback from deck A will be audible.

## If fast winding starts in the middle of a selection

The Blank Skip function (page 8) is activated (the BLANK SKIP indicator is on). Press the BLANK SKIP button to deactivate the function. (See page 8.)

## Note on the Dolby HX PRO system

The Dolby HX PRO system is effective only during recording, not during playback.

# Playing Back Both Decks in Succession—Relay Play

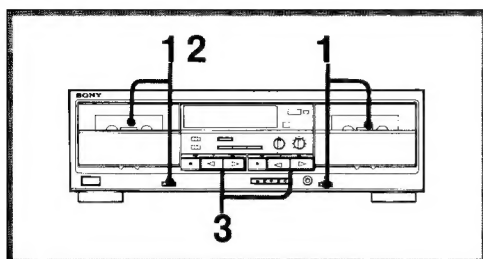
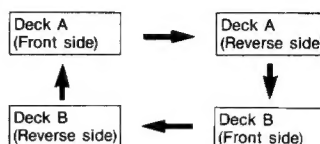
The Relay Play function plays back cassettes in deck A and deck B continuously and in consecutive order.

To stop Relay Play, press ■ of the deck playing.

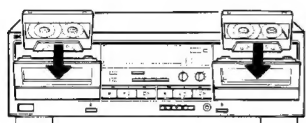
## Playback sequence of Relay Play

Relay Play always follows the sequence below regardless of where playback starts.

After playing back five times, Relay Play automatically stops.



- 1** Insert cassettes into both decks.



- 2** Set the direction mode to RELAY.



- 3** Start playback of the cassette to be listened to first.

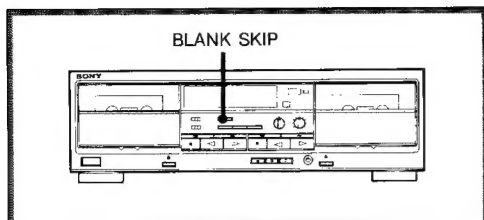
From the front side	
From the reverse side	

## Playing back more than two cassettes in succession

Replacing cassettes that have finished playing with new ones allows you to play back two or more cassettes alternately on each deck.

## Skipping Blanks—Blank Skip

When the Blank Skip function is activated, the unit automatically fast winds the cassette when a blank space of ten seconds or more is encountered, then resumes playback when a recorded portion is detected.



Activate the Blank Skip function.

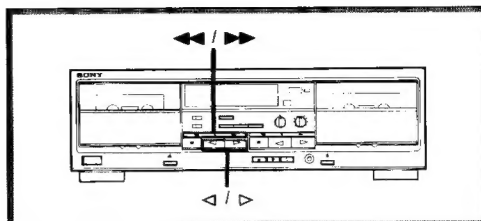


### To deactivate the Blank Skip function

Press the BLANK SKIP button, turning off the BLANK SKIP indicator.

## Starting Playback Automatically After Fast Winding—Auto Play

The Auto Play function automatically starts playing back a cassette after fast winding it to the beginning.



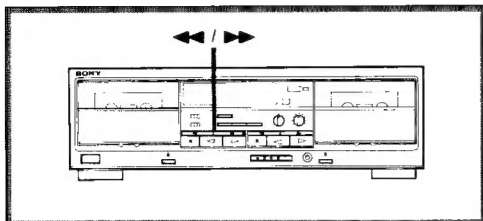
Start Auto Play

From the beginning of the front side:	While holding down ▶, press ◀◀.
From the beginning of the reverse side:	While holding down ◀◀, press ▶▶.



## Locating a Selection—Automatic Music Sensor (AMS)

The AMS function detects the blank space between selections, allowing you to quickly locate the beginning of desired selections.



During playback, check the direction indicator and press ►► or ◄◄ referring to the following table.

Direction Indicator	Desired selection	
	Next selection	Selection being played
	►►	◄◄
	◄◄	►►

The PLAY indicator blinks while the AMS searches for the beginning of the selection. After locating the beginning of the selection, playback will start automatically.

The AMS deactivates on one side of a tape even if the DIR Mode switch is set to continuous play (C).

### The AMS may skip selection

- If the ◄◄ or ►► button is pressed immediately before the following selection.
- If there is noise in the space between selections.
- If the space is less than four seconds long.

### The AMS will treat the following as blanks:

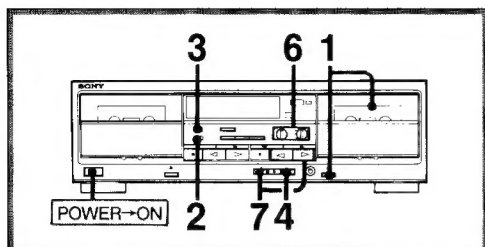
- a long pause in the music
- a passage of low frequencies or very low volume
- a gradual increase or decrease in volume

### The AMS does not function on both decks simultaneously

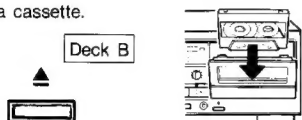
- The AMS is activated for the deck whose ►► or ◄◄ button is pressed first.
- If the AMS is activated for deck B during playback on deck A, deck B fast winds to the beginning of the selection and stops.
- If the AMS is activated for deck A during playback on deck B, deck A fast winds to the beginning of the selection and begins playback. The sound from deck B will be cut off when playback begins on deck A.

# Recording

Follow the procedure below to record a source on a cassette in deck B.



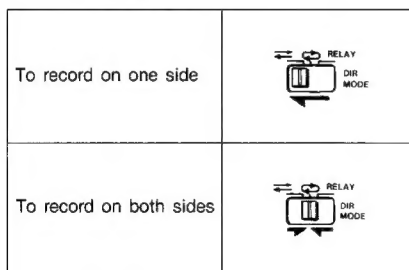
**1** Insert a cassette.



**2** Select the Dolby NR setting.



**3** Select the side(s) to be recorded.



**4** Place the unit into recording standby mode.



**5** Play the program source to be recorded.

**6** Adjust the balance and the recording level.



See Adjusting the Recording Level on page 11.

**7** Start recording.

## To record on the front side of the cassette

When ▷ is on	Press ▷ once or
When ◁ is on	Press ▷ twice

## To record on the reverse side of the cassette

When ◁ is on	Press ◁ once or
When ▷ is on	Press ◁ twice

To stop recording, press ■.

### Note on step 4

The direction indicator for the side opposite the specified one will blink for three seconds to indicate that recording is possible on that side also. If, however, the tab for that side has been removed to prevent recording, the indicator will not blink.

### Note on step 7

Pressing ◁ or ▷ twice will cause the unit first to change tape direction and then start recording in that direction.

### The ▲ button is inoperative during recording

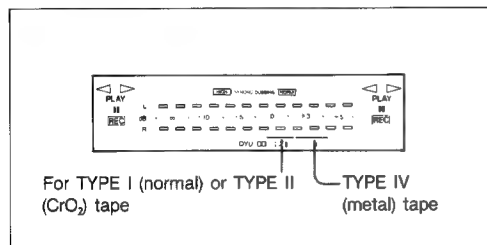
When the unit is recording or in record pause mode, the ▲ button will be disabled. To open the cassette holder, press ■ first.

## Adjusting the Recording Level

The optimum recording level, which differs according to the tape type, is indicated on the Peak Level Meter for each tape type.

Adjust the REC LEVEL control as high as possible without exceeding the recommended range for the tape type being used.

### Recommended maximum PEAK LEVEL METER reading

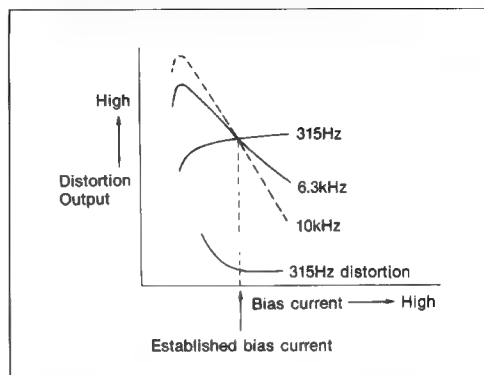


### Tips on recording level adjustment

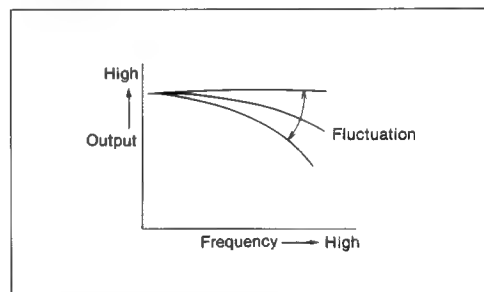
- If the recording level setting is too high, the recording will be distorted; if it is too low, the tape will produce a hissing sound. Therefore, the recording level should be set as high as possible without causing distortion.
- If the program source to be recorded has many high frequency signals, set the level to a relatively low position.

## What is the Dolby HX PRO system?

The Dolby HX PRO system provides improved linearity in high-range frequency response during recording. Tapes recorded with this system retain the same high quality even when played back on other tape decks.



As shown above, characteristics such as output level and distortion differ widely according to the bias (high-frequency) current. In conventional systems, the bias current is susceptible to variations in certain recording signals (see diagram below) which may cause fluctuations in frequency response, distortion, or other unwanted characteristics.



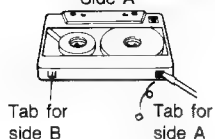
With the Dolby HX PRO system, the effective bias is controlled in millisecond units to greatly reduce distortion, improving linearity in high-range response and ensuring high-intensity recording with minimal distortion and noise.

## Recording a Tape (continued)

### Notes on Cassettes

#### To protect a recording on side A or B

Break out the respective tab. Side A



#### To recover a cassette for recording

Cover the respective slot with tape.



#### When using TYPE II (CrO<sub>2</sub>) or TYPE IV (metal) cassettes

Be careful not to cover the detector slots which are necessary for automatic tape type detection.

TYPE II (CrO<sub>2</sub>)



Detector slots

TYPE IV (metal)



Detector slots

#### Cassette care

- Avoid touching the tape surface of a cassette to prevent contamination of the heads by dirt, dust, or oil on the skin.
- Keep cassettes away from equipment with magnets, such as speakers and amplifiers, as erasure or distortion of the recorded tape could occur.
- Do not expose cassettes to direct sunlight, extremely cold temperatures, or moisture.

## Inserting a Blank Space During Recording





—Record Muting

The Record Muting function allows you to insert a four-second blank to enable proper AMS operation (see page 9), and to replace unwanted input with a blank of any desired length.





### 1 While recording, press .



- To create a four-second blank, press the button and release it immediately. The REC indicator will start to blink. During this time, no incoming signals are recorded on the tape. After four seconds, the  indicator lights up and the unit enters the recording pause mode.
- To create a blank longer than four seconds, keep  pressed for the desired length of time. After four seconds, the REC indicator will blink with greater rapidity. When you release , the  indicator lights up and the unit goes into the recording pause mode.

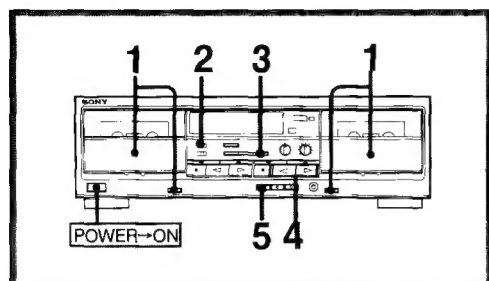
### 2 Resume recording.



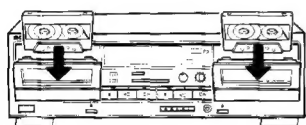
To resume recording before the four-second blank has been completed  
Press , then .

# Dubbing a Tape

High-speed dubbing allows you to dub a tape in deck A to a tape in deck B without making adjustments. High-speed dubbing is convenient for dubbing entire tapes while normal-speed dubbing is handy for tape editing.



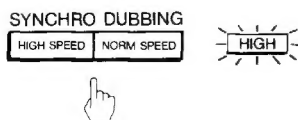
- 1** Deck A Deck B  
Recorded tape Blank tape



- 2** Select the direction mode.

One side	
Both sides	Dubbing of the reverse side starts independently of deck A.
	Dubbing of the reverse side starts simultaneously with deck A.

- 3** Select the dubbing speed.



- 4** Select the side on which to start dubbing.

From the front side	
From the reverse side	

- 5** Start dubbing.



## To stop dubbing

During normal-speed dubbing, press ■ on deck B.

During high-speed dubbing, press ■ on either deck A or B.

## During high-speed dubbing

Only the ■ button is operative.

## If the HIGH or NORM indicator blinks three times

Either one or both tabs of the cassette inserted into deck B have been removed, making dubbing impossible for that side. Cover the slot(s) with tape (see page 12).

## Is it necessary to adjust the recording level and select the Dolby NR system?

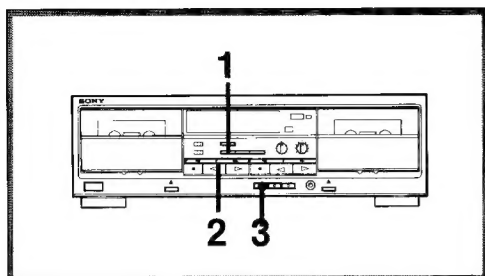
It is unnecessary during dubbing since the tape in deck B is automatically recorded with the same recording level and Dolby noise reduction system as the original in deck A. The Dolby system must, however, be set to match the tape in deck A during normal-speed dubbing when the sound is monitored.

## Using the Blank Skip function during normal-speed dubbing

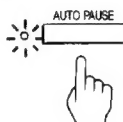
Pressing the BLANK SKIP button will activate the Blank Skip function and turn on the BLANK SKIP indicator. When a blank of ten seconds or more is encountered, dubbing will stop while the unit fast winds to the next recorded portion. When one is found, dubbing resumes.

## Dubbing only Desired Selections

Possible only during normal-speed dubbing.

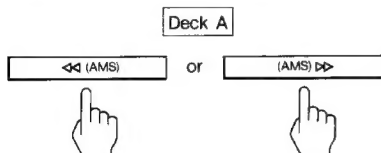


- 1 Press the AUTO PAUSE button during normal-speed dubbing.



Each time one playback selection on deck A ends, deck A goes into the pause mode and deck B goes into the recording pause mode.

- 2 Locate the desired selection (page 9).



- 3 To resume dubbing

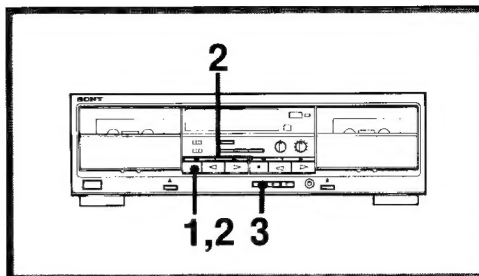


**To deactivate the Auto Pause function**  
Press the AUTO PAUSE button again.

The Auto Pause function will not operate when the space between selections is too short or contains noise.

## Dubbing only Desired Portions

Possible only during normal-speed dubbing.

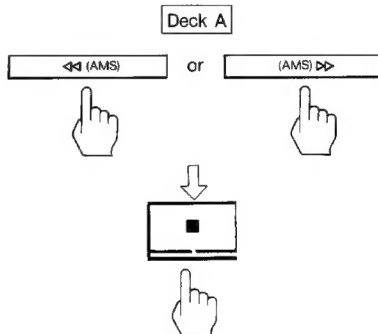


- 1 At the start of a section to be skipped:



Deck A enters the stop mode and deck B enters the recording pause mode.

- 2 Locate the desired portion.



- 3 To resume dubbing



## Maintenance

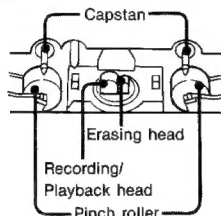
### Cleaning the Heads and Tape Path (Both Decks)

Clean all surfaces over which the tape travels after every 10 hours of operation to guard against:

- low-quality sound
- a decrease in sound level
- excessive wow, flutter or dropout
- incomplete erasure
- impairment of recording function

To obtain high-quality recorded sound, cleaning before every recording is recommended.

Wipe the heads, the pinch rollers and the capstans with a cotton swab slightly moistened with tape cleaning fluid or alcohol.



### Demagnetizing the Heads (Both Decks)

After 20 or 30 hours of use, or when you notice hiss and/or loss of high frequencies, the residual magnetism built up on the heads should be removed.

1 Turn off the power.

2 Demagnetize the heads with any commercially available demagnetizer.

Refer to the instruction manual of the demagnetizer for detailed instructions.

### Cleaning the Cabinet

Clean the cabinet, panel and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvents such as alcohol or benzene.

## Specifications

Recording system 4-track 2-channel stereo  
Fast winding time Approx. 90 sec. (with HF-60 cassette)  
Bias AC bias  
Signal-to-noise ratio (NAB, at peak level)

Dolby NR switch Cassette	OFF	B-TYPE ON	C-TYPE ON
TYPE IV (Sony METAL-ES)	58 dB	66 dB	73 dB
TYPE II (Sony UX-S)	57 dB	65 dB	72 dB
TYPE I (Sony HF-S)	55 dB	63 dB	70 dB

Total harmonic distortion

1.0% (with Sony METAL-ES cassettes)

Frequency response (DOLBY NR OFF)

TYPE IV cassette (Sony METAL-ES)	30-15,000 Hz ( $\pm 3$ dB) 30-13,000 Hz (OVU recording)
TYPE II cassette (Sony UX-S)	30-15,000 Hz ( $\pm 3$ dB)
TYPE I cassette (Sony HF-S)	30-14,000 Hz ( $\pm 3$ dB)

Wow and flutter 0.07% WRMS (NAB)  
Inputs

Line inputs (phono jacks)	Sensitivity	77.5 mV ( $-20$ dB)
	Input impedance	50 kohms

Outputs

Line outputs (phono jacks)	Rated output level	0.44 V ( $-5$ dB) at a load impedance 47 kohms
	Load impedance	Over 10 kohms
Headphones (stereo phone jack)	Output level	0.3 mW at a load impedance of 32 ohms

### General

Power requirements Model for the U.S.A.:  
120 V AC, 60 Hz  
Model for the United Kingdom:  
240 V AC, 50 Hz

Power consumption 26 Watts

Dimensions Approx. 430 × 135 × 285 mm (w/h/d)  
(17 × 5 3/8 × 11 1/4 inches)

including projecting parts and controls  
Weight Approx. 4.5 kg (9 lbs 15 oz)

### Supplied accessory

Audio connecting cord (2)

Design and specifications subject to change without notice.

# Troubleshooting Guide

The following trouble checks will help you correct the most common problems encountered with your tape deck. Should any problems persist after you have made these checks, consult your nearest Sony dealer.

Before proceeding with these trouble checks, verify that:

- The power cord is firmly connected.
- Amplifier connections are firmly made.
- Heads, capstans and pinch rollers are clean.
- The amplifier controls and switches are set correctly.

Function buttons and tape transport problems		
Symptom	Cause	Remedy
Function buttons do not activate.	Cassette holder is not fully closed.	Close the holder completely.
● button does not activate.	No cassette in the holder.	Insert a cassette.
	Tab has been removed from the cassette.	Cover the hole with plastic tape (page 12.)
Automatic shut-off mechanism activates before the tape comes to its end.	Tape is slack.	Take up the tape slack.
	Cassette shell is deformed.	Use another cassette.
	The inside of the cassette holder is illuminated by strong light.	Remove the light source.
Excessively loud tape transport noise during fast winding.	This noise is caused by the cassette and does not signify a mechanical problem.	—
The ▲ eject button does not function.	This occurs when there is a power failure or when the power cord is disconnected during playback or recording.	Turn on the power once more.

Recording and playback problems		
Symptom	Cause	Remedy
Auto reverse function does not operate.	Direction mode switch is set to → .	Set DIR MODE to ↔
Recording or playback cannot be made or there is a decrease in sound level.	Record/playback and erase heads are either dirty or magnetized.	Clean or demagnetize the heads.
	Improper connection.	Make connections properly. (page 4.)
	Improper setting of the amplifier controls.	Set the amplifier controls to the appropriate positions.
Excessive wow, flutter or dropout.	Head, capstan or pinch roller is dirty.	Clean in accordance with instructions shown on page 15.
Incomplete erasure.	Erase head is dirty.	Clean the erase head.
Increased noise or poor reproduction in high frequencies.	Head is magnetized.	Demagnetize the head.
Unbalanced tone in high frequencies.	Improper setting of the Dolby NR switch.	During playing back, set the switch to the same position used in recording.
	The unit is placed near a television set.	Move the deck away from the television set.
The desired selection cannot be located even if you activate the AMS.	There is noise in the space between selections.	Record the tape if you can, and insert a blank space of 4 seconds using the ○ button.
	The space is less than 4 seconds long.	Press ○ to insert a longer blank space.
Playback begins in the middle of a selection when the AMS function is activated.	The selection contains one of the following: — a long pause in the music — a passage of low frequencies or very low volume — a gradual increase or decrease in volume	While the tape is playing, press ◀◀ or ▶▶ again.

Noise		
Symptom	Cause	Remedy
Hum noise.	The unit is stacked on or under the amplifier.	Separate the unit.
Noise is recorded.	Recording was made near equipment such as a television set or a color monitor, and interference has affected the recording on the tape and the Dolby NR system.	Move the unit away from the television set or color monitor.